

**UNCLASSIFIED**

PE NUMBER: 0401134F

PE TITLE: Large Aircraft InfraRed Counter Measures (LAIRCM)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>February 2004</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)</b>
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	51.311	45.543	73.684	52.652	18.053	61.472	0.000	9.448	286.887
4942 Large Aircraft Infrared Counter Measures (LAIRCM)	51.311	45.543	73.684	52.652	18.053	61.472	0.000	9.448	286.887

**(U) A. Mission Description and Budget Item Justification**

The Large Aircraft Infrared Countermeasures System (LAIRCM) provides a significantly improved defensive capability for transport and tanker aircraft versus today's use of flares against the proliferating IR Man-Portable Air Defense Systems (MANPADS) threat. LAIRCM is a colorless, eye-safe multi band laser mounted in a small pointer/tracker turret. This system will require no operator intervention after activation and will consist of an advanced integrated missile warning system or systems and an active laser turret countermeasures system. The number of turrets per aircraft is determined by the size and IR signature of the aircraft. Today, the C-17 will be equipped with three turrets, the smaller turbo-prop C-130s with two. The multi-command Operational Requirements Document (ORD) -- LAIRCM ORD 314-92, was validated on 3 Aug 98. LAIRCM will meet AMC's Nov 02 Urgent & Compelling Need by equipping 12 C-17s and 8 C-130s with existing LAIRCM Phase I hardware by end FY04.

The current plan will equip 137 AF airlift and tanker aircraft with LAIRCM (71 C-17s, 32 C-130s, 22 KC-135s and 12 KC-10s). The first C-17 of the 20 LAIRCM-equipped aircraft (12 C-17s and 8 C-130s) was delivered in May 03 with the 137th aircraft (a KC-10) being delivered in FY10. The first LAIRCM-equipped C-130 is currently undergoing test -- scheduled completion is Feb 04. This 137 aircraft fleet is sized to support two simultaneous Small Scale Contingencies (2 SSC) for approximately one month.

In FY03, LAIRCM Phase II began development of a new, smaller laser/turret assembly, referred to as the mini-turret. This smaller, less expensive, but more capable turret is programmed for production start in late FY06. Development of the Next Generation Advanced Missile Warning System (NexGen MWS) will begin in May 04 with production and incorporation into LAIRCM beginning in early FY07. The C-17s will be retrofitted with this Phase II hardware when it becomes available. The LAIRCM-equipped KC-135 development funding starts in FY05 with production in FY07. Development for the LAIRCM-equipped KC-10 starts in FY08 with production and installation beginning in FY09.

Large Aircraft IR Countermeasures Program (LAIRCM): This project is in Budget Activity 7, Operational Systems Development as it is an electronic countermeasures systems upgrade to four existing weapons systems (C-17, C-130, KC-135 and KC-10).

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0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	46.795	45.946	73.877
(U) Current PBR/President's Budget	51.311	45.543	73.684
(U) Total Adjustments	4.516	-0.403	
(U) Congressional Program Reductions	-0.503		
Congressional Rescissions		-0.403	
Congressional Increases			
Reprogrammings	5.019		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

LAIRCM deliveries have been accelerated 12 months and delivered the first LAIRCM-equipped C-17 in May 2003 under the LAIRCM Lite program. This program will take the first 12 production turrets and install them in the tailcones of the first nine C-17s. The 2 forward-mounted turrets will be retrofitted to the first nine aircraft in FY04 when additional turrets become available. This LAIRCM tail-only interim installation will significantly improve the C-17's survivability in the near-term, but does not meet the ORD requirements. Hence, the two forward turrets will be retrofitted IAW the original LAIRCM design for the C-17.

## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)			PROJECT NUMBER AND TITLE 4942 Large Aircraft Infrared Counter Measures (LAIRCM)		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4942 Large Aircraft Infrared Counter Measures (LAIRCM)	51.311	45.543	73.684	52.652	18.053	61.472	0.000	9.448	286.887
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Large Aircraft Infrared Countermeasures System (LAIRCM) provides a significantly improved defensive capability for transport and tanker aircraft versus today's use of flares against the proliferating IR Man-Portable Air Defense Systems (MANPADS) threat. LAIRCM is a colorless, eye-safe multi band laser mounted in a small pointer/tracker turret. This system will require no operator intervention after activation and will consist of an advanced integrated missile warning system or systems and an active laser turret countermeasures system. The number of turrets per aircraft is determined by the size and IR signature of the aircraft. Today, the C-17 will be equipped with three turrets, the smaller turbo-prop C-130s with two. The multi-command Operational Requirements Document (ORD) -- LAIRCM ORD 314-92, was validated on 3 Aug 98. LAIRCM will meet AMC's Nov 02 Urgent & Compelling Need by equipping 12 C-17s and 8 C-130s with existing LAIRCM Phase I hardware by end FY04.

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In FY03, LAIRCM Phase II began development of a new, smaller laser/turret assembly, referred to as the mini-turret. This smaller, less expensive, but more capable turret is programmed for production start in late FY06. Development of the Next Generation Advanced Missile Warning System (NexGen MWS) will begin in May 04 with production and incorporation into LAIRCM beginning in early FY07. The C-17s will be retrofitted with this Phase II hardware when it becomes available. The LAIRCM-equipped KC-135 development funding starts in FY05 with production in FY07. Development for the LAIRCM-equipped KC-10 starts in FY08 with production and installation beginning in FY09.

Large Aircraft IR Countermeasures Program (LAIRCM): This project is in Budget Activity 7, Operational Systems Development as it is an electronic countermeasures systems upgrade to four existing weapons systems (C-17, C-130, KC-135 and KC-10).

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	FY 2003	FY 2004	FY 2005
(U) Complete development of Basic LAIRCM system, support equipment, technical orders, etc.	6.520	13.599	
(U) Complete integration of the basic LAIRCM system onto the C-17 and C-130 platforms. Modify the first C-17 and C-130 begin OT&E.	25.317	4.736	
(U) Develop the mini-turret		18.800	18.886
(U) Develop installation of LAIRCM on the KC-135			13.834
(U) Develop the Next Generation Missile Warning System (NexGen MWS)			29.903
(U) Government testing and risk reduction	14.447	1.623	2.590
(U) Program office support (TDY, A&AS contract support, training, supplies and award fee.	5.027	6.785	8.471

Project 4942

R-1 Shopping List - Item No. 212-4 of 212-8

Exhibit R-2a (PE 0401134F)

## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)</b>	PROJECT NUMBER AND TITLE <b>4942 Large Aircraft Infrared Counter Measures (LAIRCM)</b>
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(U) Total Cost		51.311	45.543	73.684
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) PE 41134F, C-17 Procurement (BP1100)	56.311	28.990	40.327	93.645	115.307	118.062	256.131	23.800	732.573
(U) PE 41134F, C-130 Procurement (BP1100)	37.318	42.162	29.483	5.552	65.185	0.000	0.000	0.000	179.700
(U) PE 41134F, KC-135 Procurement (BP1100)	0.000	0.000	0.000	0.000	50.279	0.000	0.000	0.000	50.279

(U) **D. Acquisition Strategy**

Integration of the LAIRCM subsystems will be accomplished by Northrop Grumman, who was awarded this CPAF contract on 28 Sep 01. Boeing went on contract to integrate LAIRCM on the C-17s on 18 Jan 02. The contract for integration of LAIRCM on the C-130 was awarded to Northrop Grumman as a modification to the current contract on 7 Jun 02. The contract to install LAIRCM on the KC-135 aircraft will be awarded in FY04. The NexGen Missile Warning System will award a development contract in May 04 to two companies to develop NexGen MWS prototypes. In late FY06, an open competition will determine the NexGen MWS contractor, with production deliveries beginning in FY07.

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**Exhibit R-3, RDT&E Project Cost Analysis**

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BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>			<b>0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)</b>					<b>4942 Large Aircraft Infrared Counter Measures (LAIRCM)</b>				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Northrop Grumman	CPAF	Equipment manufacturer, Rolling Meadows, IL	30.101	18.281	Sep-01	19.338		1.300		0.000	69.020	TBD
Boeing	CPAF	LAIRCM installs; Long Beach, CA	10.641	20.773	Jun-02	16.607		62.623			110.644	TBD
Subtotal Product Development			40.742	39.054		35.945		63.923		0.000	179.664	TBD
Remarks: TBD												
<u>(U) Support</u>												
ASC/GRI			8.845	5.532		5.799		8.471			28.647	
AFRL			2.100			2.176					4.276	
Subtotal Support			10.945	5.532		7.975		8.471		0.000	32.923	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Various Gov't Test Organizations	Various		6.989	6.725		1.623		1.290			16.627	
VIPER Laser											0.000	
Subtotal Test & Evaluation			6.989	6.725		1.623		1.290		0.000	16.627	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total System Cost</u>												
<u>(U) Total Cost</u>			58.676	51.311		45.543		73.684		0.000	229.214	TBD
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY  
07 Operational System Development

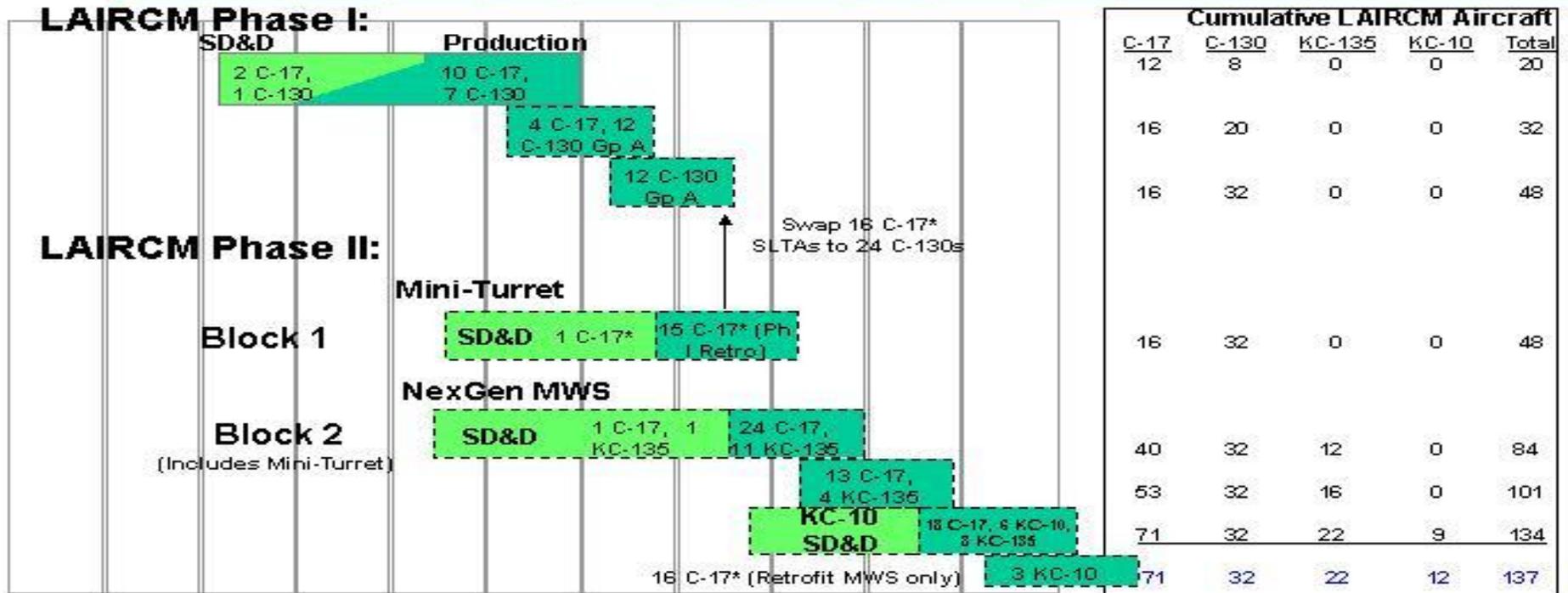
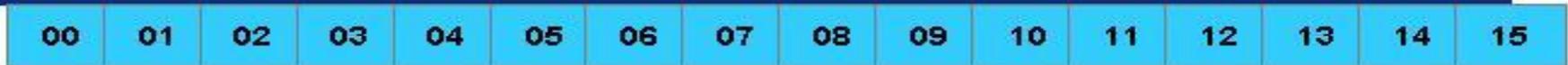
PE NUMBER AND TITLE  
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# Evolutionary Acquisition Plan (As of Oct 03)

U.S. AIR FORCE



**Note: 16 Phase I C-17's will be retrofitted w/ Phase II equipment. This removed Phase I will go on C-130s. All C-130s will be equipped with Phase I only. KC-10s and KC-135s will receive only Phase II equipment**

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2004</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4942 Large Aircraft Infrared Counter Measures (LAIRCM)</b>
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <b><u>Schedule Profile</u></b>			
(U) C-17 Aircraft Integration (Jan 02 - Nov 03)	2Q		
(U) C-17 #1 modification and OT&E (Feb 03 - Nov 03)	4Q		
(U) C-130 Aircraft Integration (April 02 - Nov 03)	3Q		
(U) C-130 # 1 Modification and OT&E (Oct 03 - May 04)		1-3Q	
(U) Operational Assessment: (Jun - Jul 02)	3-4Q		
(U) C-17 LRIP decision (Aug 02)	1Q		
(U) C-130 LRIP decision (Dec 02)	1Q		
(U) Phase II SDD (FY03-FY06)		1Q	
(U) Full Rate Production decision (Jul 04)		4Q	
(U) Phase II SDD (FY04-FY06)		1Q	